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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/511,677	04/28/2005	Maric-Jose Azzopardi	260178US0PCT	6365
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OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314				
			EXAMINER	
			BLACKWELL, GWENDOLYN ANNETTE	
			ART UNIT	PAPER NUMBER
			1794	
			NOTIFICATION DATE	DELIVERY MODE
			12/13/2007	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com  
oblonpat@oblon.com  
jgardner@oblon.com

## Office Action Summary

**Application No.**

10/511,677

**Applicant(s)**

AZZOPARDI ET AL.

**Examiner**

Gwendolyn Blackwell

**Art Unit**

1794

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 04 October 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) 24-27 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16, 18-23, 28, 29, 31 and 32 is/are rejected.
- 7) ☒ Claim(s) 17 and 30 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 October 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☐ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

*\*The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.*

2. Claims 14 and 29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 14 and 29 are indefinite as Applicant is claiming "wherein the diameter of the first coating". It is not clear what diameter Applicant is comparing. Clarification is required. To further prosecution the limitation of claim 14 will be interpreted as the diameter of the grains and/or crystallites of the first coating.

### *Claim Rejections - 35 USC §§ 102/103*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

*(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.*

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

*(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person*

*having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.*

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1-13, 15-16, 18-23, 28, and 31-32 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over International Patent Application Publication no. WO 02/24971, WO '971.

*Regarding claim 1*

WO '971 disclose a substrate with a photocatalytic coating, (abstract). The coating can be comprised of a sublayer of silica, SiOC, or SiON (hydrophilic) with a layer of photocatalytic TiO<sub>2</sub> based coating formed thereon wherein the titania based coating can be porous, (pages 4-5, lines 24-9; page 7, lines 10-30 and Example 1; page 13, lines 7-20), meeting the limitations of claim 1.

*Regarding claims 2-13, 15-16, 18-23, 28, and 31-32*

The substrate can be transparent and used for different types of glazings, (page 1, lines 8-23), meeting the limitations of claim 2.

As SiOC is one of the materials in claim 1 that can be used for the hydrophilic first coating it would be expected that the SiOC of the prior art would meet the refractive index limitation absent an objective showing to the contrary, meeting the limitations of claim 3.

Claims 4, 19-20, 28, and 32 are considered product by process claims. The patentability of a product does not depend on its method of production. If the product in the product by process claim is the same as or obvious from a product of the prior art, the claims is unpatentable even though the prior art was made by a different process. *MPEP 2113*.

The SiOC layer is 80 nm thick, (page 13, lines 7-11), meeting the limitations of claim 5.

The surface of the SiOC layer can have a surface roughness of at least 5 or 10 nm, (page 7, lines 4-13), meeting the limitations of claims 6-11.

While the thickness of the TiO<sub>2</sub> layer is not specifically disclosed, absent a showing of criticality with respect to thickness (a result effective variable), it would have been obvious to a person of ordinary skill in the art at the time of the invention to adjust the thickness through routine experimentation in order to achieve a hydrophilic coating having the desired anti-misting properties without affecting the optical characteristics of the coated transparent substrate. It has been held that discovering an optimum value of a result effective variable involves only routine skill in the art, meeting the limitations of claim 12. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

The TiO<sub>2</sub> layer contains crystallites having a size generally less than or equal to 50 or 40 or 30 nm, (page 5, lines 10-19), meeting the limitations of claim 13.

The surface of the coating can have a surface roughness of between 5.5 and 6.0 nm, (page 6, lines 5-14), meeting the limitations of claim 15.

The photocatalytic coating follows the roughness of the of the underlayer, (page 7, lines 4-13), meeting the limitations of claim 16.

While the amount of material is not specifically disclosed as claimed by Applicant, absent a showing of criticality with respect to thickness (a result effective variable), it would have been obvious to a person of ordinary skill in the art at the time of the invention to adjust the amount of material through routine experimentation in order to achieve a hydrophilic coating having the desired properties without affecting the optical characteristics of the coated transparent substrate. It has been held that discovering an optimum value of a result effective variable involves only routine skill in the art, meeting the limitations of claims 18 and 31. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

The  $R_L$  value is at most 20 %, which would encompass at most 12%, with  $a^*$  and  $b^*$  values of less than 2.5, which would encompass the ranges as claimed, (page 14, lines 1-4), meeting the limitations of claim 21.

Example 1 demonstrates a palmitic acid degradation of at least 10 nm/h, (page 13, lines 28-31), meeting the limitations of claim 22.

As the coating of Example 1 meets the structural limitations of Applicant's claim 1, it would be expected that the coating would exhibit the range of water contact angle as set forth in claim 23 absent an objective showing to the contrary, meeting the limitations of claim 23.

7. Claims 1-5, 12-13, 18-23, 28, and 31-32 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over United States Patent no. 6,299,981, Azzopardi et al.

*Regarding claim 1*

Azzopardi et al disclose a transparent substrate having improved hydrophilic properties comprising surface irregularities, (column 1, lines 5-14). Example 1 demonstrates a coating comprised of a first layer of SiOC (hydrophilic) with a second layer of TiO<sub>2</sub> particles dispersed in a SiO<sub>2</sub> binder, (column 4, lines 30-65). In the example a hydrophobic layer is formed thereon, however absent the hydrophobic layer, the coating will exhibit hydrophilic properties, (column 6, lines 3-11). The particles in the coating create a surface having irregularities forming a bumps and hollows (discontinuous and/or permeable) structure, (column 2, lines 34-48), meeting the limitations of claim 1.

*Regarding claims 2-5, 12-13, 18-23, 28, and 31-32*

The transparent substrate can be used for glazings in various applications such as for windows, (column 1, lines 5-14), meeting the limitations of claim 2.

As SiOC is one of the materials in claim 1 that can be used for the hydrophilic first coating it would be expected that the SiOC of the prior art would meet the refractive index limitation absent an objective showing to the contrary, meeting the limitations of claim 3.

Claims 4, 19-20, 28, and 32 are considered product by process claims. The coating of the prior can be made through sol gel, CVD, or pyrolysis, (column 4, lines 11-29). The patentability of a product does not depend on its method of production. If the product in the product by

process claim is the same as or obvious from a product of the prior art, the claims is unpatentable even though the prior art was made by a different process. *MPEP 2113*.

While the thickness of the SiOC layer and the TiO<sub>2</sub> layer are not specifically disclosed, absent a showing of criticality with respect to thickness (a result effective variable), it would have been obvious to a person of ordinary skill in the art at the time of the invention to adjust the thickness through routine experimentation in order to achieve a hydrophilic coating having the desired anti-misting properties without affecting the optical characteristics of the coated transparent substrate. It has been held that discovering an optimum value of a result effective variable involves only routine skill in the art, meeting the limitations of claims 5 and 12. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

The size of the nanocrystallites is 7 nm, (column 4, lines 56-60), meeting the limitations of claim 13.

While the amount of material is not specifically disclosed as claimed by Applicant, absent a showing of criticality with respect to thickness (a result effective variable), it would have been obvious to a person of ordinary skill in the art at the time of the invention to adjust the amount of material through routine experimentation in order to achieve a hydrophilic coating having the desired properties without affecting the optical characteristics of the coated transparent substrate. It has been held that discovering an optimum value of a result effective variable involves only routine skill in the art, meeting the limitations of claims 18 and 31. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).



As the coating structure of the prior art meets the limitations of the coating as claimed, it would be expected that the coated transparent substrate of Azzopardi et al would meet the optical and physical characteristics of claims 21-22 absent an objective showing to the contrary.

After exposure to light the coating can have a water contact angle of less than 5°, (column 3, lines 23-33), meeting the limitations of claim 23.

#### ***Allowable Subject Matter***

8. Claims 17 and 30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The closest prior art of record while teaching the layer structure does not teach or suggest the combination of the general layer structure with the specific limitations of claims 17 and 30.

#### ***Response to Arguments***

9. Applicant's arguments filed October 4, 2007 have been fully considered but they are not persuasive.

10. Applicant contends (1) that WO '971 does not teach a titania layer that is discontinuous and/or permeable. This is not persuasive as WO '971 specifically discloses that the titania layer can have a porosity, (pages 4-5, lines 24-9).

11. Applicant contends (2) that Azzopardi does not describe or suggest a discontinuous and or permeable outer coating as set forth in claim 1. It is unclear where Applicant obtained the figure that is set forth in the response. However, based on the figure, the layer structure of claim

1 is disclosed as the titania particles act as a discontinuous coating over the silica layer which would meet Applicant's claim 1 limitations at the minimum.

Not looking at Applicant's figure, Applicant has not provided any objective evidence to the contrary to demonstrate that the layer structure of Azzopardi would not meet the claimed invention. The arguments of counsel cannot take the place of evidence in the record. In re Schulze, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965); In re Geisler, 116 F.3d 1465, 43 USPQ2d 1362 (Fed. Cir. 1997) ("An assertion of what seems to follow from common experience is just attorney argument and not the kind of factual evidence that is required to rebut a prima facie case of obviousness."). WO '971 demonstrates that deposition conditions can be manipulated to obtain the desired layer characteristics. Absent an objective showing to the contrary that the coating of Azzopardi could not meet the claim limitations, Applicant has not demonstrated any patentable distinction between the prior art and the claimed invention.

For the reasons set forth above, the rejections will be maintained.

### ***Conclusion***

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

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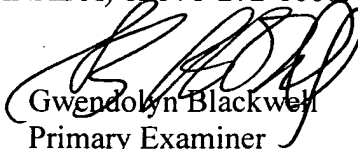
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CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gwendolyn Blackwell whose telephone number is (571) 272-1533. The examiner can normally be reached on Monday - Thursday; 6:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on (571) 272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Gwendolyn Blackwell  
Primary Examiner  
Art Unit 1794